An overview of BNL E910's proton-nucleus results

R.A. Soltz [a]

[a] *LLNL, Livermore, CA, USA*

Presented by: R.A. Soltz

Abstract

Experiment 910 has collected a data set unprecedented in size and scope for proton-nucleus interactions in Be, Cu, and Au targets at the BNL AGS. Using a TPC, downstream tracking, time-of-flight, and a Čerenkov counter we have identified mesons (π^{+-0}, K^{+-}, K_s, ϕ), and baryons, (p, $\overline{p}$, Δ^{++}, Λ, $\overline{\Lambda}$, Ξ^-) over a large range in rapidity, and down to zero transverse momenta. We characterize the event centrality according to ν, the mean number of collisions of the projectile using a measurement of the number of grey tracks in the TPC. From a study of the dependence of particle production on this quantity ν, we obtain new insights into particle production in the nuclear environment. We will survey these results and summarize the implications for particle production in nucleus-nucleus collisions at the AGS and CERN. We believe this method of p-A analysis will serve as an example for measurements of p-A collisions at RHIC and the LHC as an important component of their respective heavy-ion programs.

Preprint submitted to Elsevier Preprint *20 December 2000*